Notes from the Field

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A Navy Flight Surgeon's Experience in Iraq

In August 2005, I deployed with Marine Wing Support Squadron (MWSS) 372 to Al Taqaddum Airbase in Habbaniyah, Iraq, in support of Operation Iraqi Freedom. Based at Camp Pendleton, CA, MWSS 372 provides aviation support services—including aviation refueling, airfield operations, firefighting, rescue, motor transport, engineering support, flight line security, and medical care—to marine flying squadrons in both stateside and deployment operations. While in garrison, the MWSS 372 medical staff consists of one flight surgeon and 10 navy hospital corpsmen from Naval Hospital Camp Pendelton.

For this deployment, however, the squadron was augmented by a number of additional personnel, from Naval Hospital Corpus Christi, Corpus Christi, TX (myself, a physician assistant, and six hospital corpsmen); Naval Hospital Pensacola, Pensacola, FL (a pediatrician and several other corpsmen); and Naval Hospital Jacksonville, Jacksonville, FL (one corpsman). The hospital corpsmen included preventive medicine, pharmacy, radiology, and laboratory technicians, along with several general duty corpsmen who had completed Field Medical Services School.

PREPARING TO DEPLOY

In the months before deployment, the corpsmen and medical officers worked together to prepare over 580 marines for their tour in Iraq by administering immunizations, dispensing eyeglasses, giving educational briefs, performing routine medical examinations, and prescribing medications. The entire squadron also took part in the training exercise Desert Talon, conducted at Marine Corps Air Station Yuma, Yuma, AZ. Training for medical personnel included the Pistol Expert Marksmanship Program, participation in convoys and aircraft refueling detachments, and the use of tactical ambulances for patient evacuation. Physicians taught courses in basic combat trauma care and responding to chemical, biological, and nuclear attacks.

During the training exercise, everyone wore Kevlar helmets and vests and carried their weapons at all times to get ready for work in a war zone. In addition, living with daily high temperatures above 110ºF, sleeping in tents without air conditioning, and showering only every other day helped us prepare mentally and physically for the conditions we would encounter in Iraq.

SETTLING IN

After several days spent in transit and awaiting our last flights from Kuwait, we arrived at Al Taqaddum Airbase to relieve MWSS 371, which had been staffing the Air Combat Element (ACE) medical clinic. The 2,000–square foot clinic, built during the reign of Saddam Hussein, is the largest outpatient facility on a base of 3,000 military and civilian contract workers. It is situated near the Surgical/Shock Trauma Platoon (SSTP) and the flight line (Figure 1).

Directly off the clinic's lobby is an emergency area with two beds, a defibrillator, an electrocardiograph, resuscitation fluids, and various procedure trays. The facility's treatment room has three curtained areas for routine clinic visits and shelves stacked floor to ceiling with medical supplies. The laboratory, which shares space with a well stocked pharmacy (Figure 2), is equipped for preparing routine blood chemistry; complete blood counts; urinalysis; mail-out tests; and such qualitative tests as beta–human chorionic gonadotropin, rapid streptococcus, and troponin. The clinic also houses patient check-in, records, and administration rooms; a physician workroom; and a portable, digital x-ray machine.

Due to space constraints, the clinic maintains five semi-truck–sized shipping containers filled with everything from bandages and crutches to medications and office supplies. I quickly came to understand that, in this type of deployment setting, medical supplies cannot be taken for granted. Despite careful planning, we often found it necessary to substitute one medication for another and to improvise when the appropriate pharmaceuticals or medical supplies were not at hand. We regularly used internet resources (such as MDConsult) and often e-mailed specialists back in the United States for consultations. Our internet connection was sometimes offline for hours at a time, however, making our meager library of textbooks invaluable (Table).

A DIVERSE PATIENT POPULATION

Although the central mission of the ACE medical clinic is to provide primary care services to MWSS 372 marines, it became apparent that fulfilling this mission would be the

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least time consuming of our many duties. During our tour, we provided care around the clock to all military service members, particularly those without any other primary care assets on the base. Many civilian contract workers also came to us for a variety of ailments, including some—such as uncontrolled diabetes and severe aortic regurgitation with symptomatic congestive heart failure—that would disqualify active duty service members from deployment. While we were surprised to be caring for so many civilians, we did our best to keep the base workforce productive by providing high quality, timely services to all who needed them.

Among the challenges we faced in serving such a diverse population were cultural and language barriers. We treated contract workers from many different countries, including Romania, Turkey, India, Pakistan, Nepal, Sri Lanka, Sudan, and Iraq. Although most non–English speaking contract workers are accompanied by coworkers who do speak English, these coworkers' English proficiency—particularly with medical terms—is variable. Very helpful to us were several contracted Arabic translators whom the U.S. government maintains on base.

We gradually learned that our American practice of medicine isn't always appropriate or acceptable in the context of other cultures. For example, several Iraqi patients who worked on the base were brought to our clinic with heat-related injuries. During the Islamic month of Ramadan, when observant Muslims are required to fast during daylight hours, many of these patients refused both oral and intravenous hydration before sundown. This took us by surprise because we had been used to U.S. military regulations that require troops to drink throughout the day. We learned to ask Iraqi patients about fasting and to counsel them to drink plenty of fluids after sunset and avoid strenuous work in the heat of the day.

Figure 1. LT Hessert and HN Dudley assessing a mock patient as part of a mass casualty exercise on the Al Taqaddum flight line.

We also learned a great deal about cultural differences while caring for a young Iraqi boy who had been injured by an improvised explosive device. While visiting a market with his older brother, he had sustained a projectile wound through his left palm that fractured two metacarpal bones. Initially, he was upset by the pain and by his brother's more severe injuries. After receiving morphine for the pain and reassurance that his brother was being treated in the operating room, he became equally upset about a female nurse cutting off his clothes to allow for a complete trauma evaluation. We were surprised by the modesty of such a young child, but we grew to understand its importance in this culture. In addition, we realized that he placed a much greater value on his clothing than we did, knowing it would be difficult and expensive to replace (we provided new clothes for him before his transfer to a larger field hospital).

I also found that geographical differences can affect medical practice in unexpected ways. One Iraqi man accidentally ingested ethylene glycol (antifreeze), thinking it was Gatorade. The interpreter explained that the man had made this mistake because he had never before encountered antifreeze—Iraqis do not use it because the country's climate is so warm.

PATIENT HIGHLIGHTS

Though our six and a half months at Al Taqaddum were filled primarily with colds, sprains, and headaches, several cases proved to be particularly challenging. One of these was a 47-year-old, overweight, Turkish man who said that his vision had been blurred for several days. An examination showed him to be healthy except for his poor visual acuity and an elevated random glucose level of

Figure 2. Pharmacy technician HM2 Snavely at work in the Air Combat Element clinic pharmacy.

257 mg/dL. We initiated treatment with metformin (the only oral antihyperglycemic agent stocked in our pharmacy), dietary modification, and exercise and strongly advised him to see a physician for follow-up upon returning to Turkey.

Another notable case involved a contract worker from Nepal who fractured his medial malleolus. Our orthopedic surgeon recommended open reduction and internal fixation within 10 days, and the worker's employer made arrangements for care at a civilian facility in Baghdad. Three months later, however, the worker returned to us with continued pain and radiologic nonunion of the fracture. It turned out that he had returned to work after only three weeks in a short leg cast. Because we do not perform elective surgery on base (due to an increased risk of infection with the operating room being located in a tent), we placed the patient in a walking cast for eight weeks with the hope that his tibia would heal. Unfortunately, his ankle continued to be unstable and painful after the cast was removed. His employer subsequently returned him to Nepal to seek surgery on his own, since he no longer could work.

In another case, an Iraqi man sought treatment after accidentally sticking himself in the hand with a discarded U.S. military issue atropine 2 mg autoinjector, which is used for self-treatment after exposure to nerve agents. He had found the autoinjector while working in the base scrap metal lot and, believing it was a pen, picked it up. The man recovered well with supportive treatment.

Table. Essential reference books for deployment

- Greene WB, ed. *Essentials of Musculoskeletal Care*. Rosemont, IL: American Academy of Orthopedic Surgeons; 2001.
- Habif TP, ed. *Clinical Dermatology*. Philadelphia, PA: Mosby; 2004.
- Tintinalli JE, ed. *Emergency Medicine*. New York, NY: McGraw-Hill; 2005.
- Tierney LM, ed. *Current Medical Diagnosis & Treatment*. New York, NY: Lange Medical Books/McGraw-Hill; 2005.
- Pineda R, Kaiser PK, Friedman NJ, and the Massachusettes Eye and Ear Infirmary. *The Massachusetts Eye and Ear Infirmary Illustrated Manual of Ophthalmology*. New York, NY: WB Saunders Co.; 1998.

A WELL ORGANIZED SUPPORT NETWORK

Although we were practicing in the midst of a war-ravaged country, we found that we were far from alone in terms of medical support. During our time at the Al Taqaddum ACE clinic, the specialists at the SSTP were incredibly helpful in answering questions and providing consultations. While emergent surgical procedures were performed in the base's operating tents, elective cases were transferred to Landstuhl Regional Medical Center in Germany. With regular flights, the MEDEVAC system actually makes getting a specialty consultation in theater hospitals much faster than it is in the United States. Furthermore, specialists from Brooke Army Medical Center in San Antonio, TX responded within 24 hours to clinical questions by e-mail.

Medical officers from the ACE clinic, in turn, serve as consultants to several local, independent duty corpsmen and medics and assist the mortuary affairs department by completing death certificates for both coalition and enemy casualties. The clinic is also responsible for x-ray, laboratory, and electrocardiography referrals from 10 nearby aid stations. Furthermore, clinic personnel stand by with a full staff during every mass casualty situation to take "walking wounded" patients from the SSTP.

By encouraging mutual support and the sharing of expertise, this organized system works to bring excellent medical care to deployed troops and contract workers within a combat zone with little technology and limited resources.

BEYOND CLINIC CARE

In addition to providing medical care in the clinic, our corpsmen worked all over the base. While the base has civilian fire and ambulance crews, MWSS 372 provided crash, firefight-

ing, and rescue services for the flight line and served as first responders to any aviation mishaps. Corpsmen accompanied each convoy and response team that left the base in case any injuries or illnesses occurred during the trip. To keep our base healthy, preventive medicine technicians inspected and exterminated insects from the living quarters of hundreds of marines. Corpsmen also shared their first aid knowledge with everyone on the battlefield through combat lifesaver classes. Moreover, we all learned from one another in informal ways—about medicine, the marine corps, and our own hobbies and interests.

During our deployment, the corpsmen of MWSS 372 made a tremendous effort to improve the clinic. They built countless plywood shelves to organize supplies and records, painted whole rooms, converted an unusable shower room into an office, and even built a charcoal grill from a 40-gallon drum. Though the building has no running water, MWSS 372 corpsmen built cabinets for field sinks, which have tanks of water that are pumped to faucets and drain into other containers. Other projects—such as the remodeling of living areas and routing of cables for computer networks, electricity, and American Forces Network television—improved the appearance and organizational capacity of the base.

BACK TO BASICS

My experience in Iraq, though worlds away, reminded me of my step-grandfather's and great-grandfather's stories about practicing medicine in rural Wisconsin. In treating their patients, they made due with the limited tools and medications available in their offices, which were an hour's drive away from the nearest hospital. I found it refreshing to participate in tasks—such as positioning patients for x-ray imaging, casting fractures, viewing laboratory samples under the microscope, and browsing the pharmacy shelves to see what was "on formulary"—that usually are handled by support staff stateside. This tour helped me to grow as a physician and improve my diagnostic skills without the benefit of many technological tools available at home. By forcing us to adapt from practice in a sophisticated, tertiary care center one month to a level-one aid station in a remote combat zone the next, deployment presents military physicians with a unique opportunity as well as a challenging responsibility. ●

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